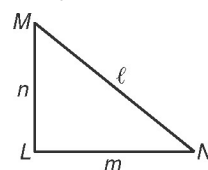


Dear family,

You may have noticed on campus, that there is now a deadline for redoing tests and quizzes. This is not a “hard” deadline. Missing the deadline does not mean your child has missed their chance to redo. I give students one week to come-in on their own and get help with the corrections. I understand there are many influences on a person’s time including teenagers. After a week, I am less lenient about theses conflicts and will set the time that I expect the student to come-in. Of course, the best option is study for the assessment beforehand and not have to complete a redo.

In this chapter, your child will learn about right triangles and trigonometry. Your child will learn three trigonometric ratios commonly used to find the relationships of angles and the lengths of sides in right triangles.

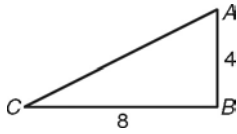
Look at the right triangle and then consider the ratios presented in the table that follows.



Ratio	Definition	Ratio
sine	the ratio of the length of the leg opposite the angle to the length of the hypotenuse	$\sin N = \frac{\text{opposite leg}}{\text{hypotenuse}} = \frac{n}{l}$ $\sin M = \frac{\text{opposite leg}}{\text{hypotenuse}} = \frac{m}{l}$
cosine	the ratio of the length of the leg adjacent to the angle to the length of the hypotenuse	$\cos N = \frac{\text{adjacent leg}}{\text{hypotenuse}} = \frac{m}{l}$ $\cos M = \frac{\text{adjacent leg}}{\text{hypotenuse}} = \frac{n}{l}$
tangent	the ratio of the length of the leg opposite the angle to the length of the leg adjacent to the angle	$\tan N = \frac{\text{opposite leg}}{\text{adjacent leg}} = \frac{n}{m}$ $\tan M = \frac{\text{opposite leg}}{\text{adjacent leg}} = \frac{m}{n}$

I do expect students to know these formulas. They will be using the formulas in the next three math classes they will take in high school, Algebra II, precalculus and calculus. To help students memorize these formulas, we will sing a song in class. I am sure your child will be thrilled if you ask them to sing the song at home.

Your child will then be able to solve problems involving right triangles by using either the Pythagorean Theorem or the trigonometric ratios.



Pythagorean Theorem

$$AC^2 = AB^2 + BC^2$$

$$= (4)^2 + (8)^2$$

$$= 16 + 64 = 80$$

$$\text{So } AC = \sqrt{80} \approx 8.9.$$

Trigonometric Ratios

$$\tan A = \frac{8}{4} = 2$$

$$m\angle A = \tan^{-1}(2)$$

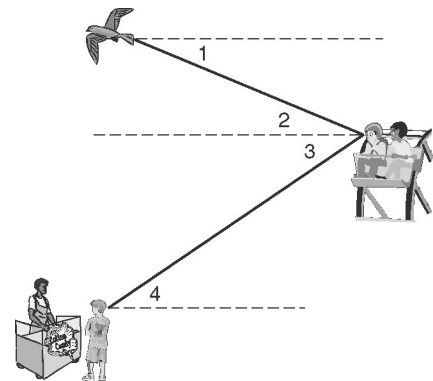
$$m\angle A \approx 63^\circ$$

$$\text{Since } m\angle B = 90^\circ, m\angle C \approx 27^\circ.$$

Your child will also learn to identify the angles of elevation and angles of depression in a figure.

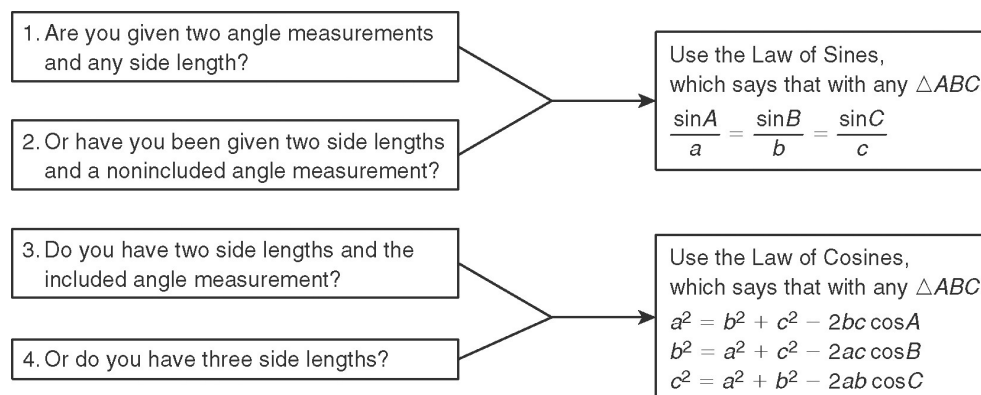
The **angle of elevation** is the angle formed by a horizontal line and a line of sight to a point above the line. For example, in this diagram, $\angle 2$ is an angle of elevation for the student on the Ferris wheel. He is looking up at the bird.

The **angle of depression** is the angle formed by a horizontal line and a line of sight to a point below the line. In this diagram, $\angle 1$ is an angle of depression for the bird. The student on the Ferris wheel can look down at his friend along $\angle 3$.



Your child will learn steps used to decide when to use the Law of Sines and when to use the Law of Cosines to solve a problem.

The steps are as follows:



Your child will also learn about vectors. He or she will learn that vectors can be described in a variety of ways, as seen in the table.

Term	Diagram or Example
initial point, terminal point	
component form	<p>$\vec{XY} = \langle 5, 3 \rangle$</p>
magnitude	<p>\vec{XY} means length of</p> <p>$\vec{XY} = \sqrt{5^2 + 3^2} = \sqrt{34} \approx 5.8$</p>

The following are the assignments and the assessments for this unit. As a reminder the actual dates when the assignments are assigned can be found on the [assignment calendar](#) on my [school webpage](#). This can be found under classrooms on the [high school webpage](#).

Are You Ready Chapter 8 Pretest

8-1 Similarity in Right Triangles (pp 537-539) 15-25 odd, 26, 27, 30-36 even, 40-42, 44-47.

8-2 Trigonometric Ratios

- (pp 545) 23, 27, 29, 30, 33, 35, 29, 41, 43, 48, 50, 64, 66, 67.

- (p 550) 1, 5, 7, 13, 15.

8-3 Solving Right Triangles (pp 556) 21, 25, 29, 31, 34-38, 51, 54, 58, 60, 62, 63.

Ready to Go On Section 8A Pretest & posttests.

Chapter 8 Quiz 1.

8-4 Angles of Elevation and Depression (p 565) 11, 13-16, 19, 20, 23-30.

8-5 Law of Sines and Cosines (pp 573) 23, 25, 29, 31, 35, 37, 38, 42, 46, 49, 50-54, 56, 58.

8-6 Vectors (pp 582) 19-21, 23, 25, -29, 31, 40, 49, 54, 58, 59.

Ready to Go On Section 8B Pretest & posttests.

Chapter 8 Quiz 2.

Chapter 8 Practice test.

Chapter 8 Test.